

ABSTRACT

A rotary pneumatic coupling (25) is disclosed, in which the vehicle axle (19) is used as a support for the installation piping. The coupling shaft (49) has an end formed as a nozzle projecting towards the wheel plane and arranged as an axial extension of the vehicle axle end. The shaft is rotatably and slideably supported by a pair of ball bearings (47) inside a block (35-37) secured to the wheel hub cap (39). The internal shaft conduit (51) leads to a chamber (45) having ports for connection to the tires after passing through the respective chamber valve. The shaft abuts against an axially movable plug (57) closing the chamber and having an axial hole as an extension of that conduit. An axial shift of the shaft relative to the plug opens the chamber to a vent port (65). This situation causes a status indicator light (27) to light up in the panel of a control module provided in the trailer within the field of view of the rear-view mirror (33). Methods for detecting wheel bearing faults use this coupling when the axial shift of the shaft is sufficient to vent pressurized air or to cut the cover. Another embodiment discloses a shorter shaft making the coupling (25') more compact such that it stands out less from the vehicle. Different methods are used to arrange an air duct inside the hollow axle according to features thereof. The system is comprised of two rotary couplings in both ends of the axle and a pneumatic tube installed inside the axle and connecting to the air supply system through its middle portion.